Application Serial Number 10/666,009

A Flexible Multi-cladded Metallic Tape for Forming Parabolic Shaped Magnetic Field and Energy Deflecting Devices

BACKGROUND OF THE INVENTION

Mobile telephones operating in an analog mode produce radiation, which has been proven to affect the user's health. Modern mobile telephones operating in digital mode only generate 1/10 of the radiation of the older analog mobile telephones. However, most mobile telephones (specifically cellular telephones) do not have sufficiently good connection with their transmitting towers to stay in the digital mode of operation. Even the newest cellular telephones are dual mode or tri-mode telephones, with the fallback mode of operation being analog. In the fall-back mode of operation (analog), the cellular telephone using it's ability to control an internal rheostat increases it's power radiation by a factor of eight to twelve times over it's digital mode of operation.

The long-term health effects would probably not have shown up for ten to twenty years, except radiation effects are cumulative and today's user is exposing themselves for much longer periods of time than was true when mobile telephones first came into use. Today children are using mobile telephone plans that provide thousands of minutes per month - and they are using them. This extended use will increase the number of health related problems from cellular telephone use and will change the risk profiles of health related statistics.

The Good Housekeeping Institute released a report on cell telephone shields, based on tests conducted by Intertek Testing Services. The test results showed that all of those shields tested were not effective at blocking the radiation from cellular telephones. Good Housekeeping filed formal complaints with the FTC against these manufacturers and the FTC subsequently sued the shield manufacturers for false advertising to stop them from selling non-functional shields.

Mobile telephone transmitting antennas radiate Radio Frequency (RF) energy omni-directionally. This RF for most mobile telephones is in the microwave range of the energy spectrum. Also, as each RF wave leaves the antenna, an accompanying magnetic wave also is generated.

The new SAR ratings that Cell Phone Manufacturers are now forced to disclose are measurements of this energy absorbed as heat coming off the transmitting antennas of mobile telephones into the users head. SAR stands for Specific Absorption Rate, which is a measure of the amount of heat that reaches sensors placed in the middle of a human skull packed with gel, to approximate the density of the human brain, as depicted in Figure 1.

A question that has surfaced recently concerns the effects on our children. A child's skull is less dense than an adult's, so radiation tunnels deeper into their brains; and a child's brain is still developing, so mutation of the DNA at the basic blood cell level is worse for a child.

SUMMARY OF THE INVENTION

It is very desirable to have a device that reduces both the RF and magnetic field problems of mobile telephones and improves their transmission. A device that deflects the magnetic field generated by the transmitting antenna and deflects the RF microwave away from the mobile telephone user's head. The drawing in Figure 2 shows the effect of a flexible tape on device formed as a parabolic half cylinder around the cellular telephone's transmitting antenna. The prototype flexible nested parabolic deflector device can deflect 100% of the magnetic field that would radiate the skull and deflects 100% of the microwave RF energy, without adversely effecting the operation of the cell phone. Figures 6 and 7 show the FCC standard test report results of an engineering prototype tested by an FCC certified laboratory, PCTest Engineering Services, Inc., wherein the transmitting antenna of the mobile telephone was not shielded (Figure 6) and where approximately 75% of the transmitting antenna was shielded (Figure 7).

BRIEF DESCRIPTION OF THE DRAWINGS

In drawings which illustrate embodiments of the invention,

Figure 1 is a top down view of the magnetic wave and RF radiation from a typical omni-directional antenna held in close proximity to the user's head;

Figure 2 is a top down view of the magnetic wave and RF radiation from a typical omni-directional antenna held in close proximity to the user's head with the invention in use;

Figure 3 is an edge view of the cladded layers of metallic tape, which form the basic deflecting shield;

Figure 4 is a top down view of how the invention would be oriented/installed on an omni-directional antenna;

Figure 5 is a face on view of placement of the invention on a typical cellular telephone with an external omni-directional antenna;

Figure 6 is the reproduction of an FCC certified laboratory report – FCC report number HDT56ZF1 – showing the SAR of an unshielded typical cellular telephone; and

Figure 7 is the reproduction of an FCC certified laboratory report – FCC report number HDT56ZF1 – showing the SAR of the same cellular telephone with the invention installed.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The outer most part of the deflector shield should be made of a solid lead or gold tape that is six thousandths thick and 1/2" wide wherein a 1" length would weigh 1/4 gram. As shown in the drawing Figure 3 - Part 1, it would have an insulating flexible adhesive for cladding it to the next inner part. The first inner part of the shield should be made of solid copper foil. Best results coming from a foil that is at least three thousandths thick, as shown in the drawing Figure 3 - Part 2. Aside from having the outer most part cladded in parallel to it, it would have an insulating flexible adhesive for cladding it to the next inner part. The second inner part layer should be formed from 80 mesh 100% copper metal fabric; as shown in the drawing Figure 3 - Part 3. Aside from having the first inner part cladded in parallel to it, it would have an insulating flexible adhesive for attaching the shield to the mobile telephone, covered by a non-stick peel-off paper.

The attachment should be accomplished such that the shield encompasses the full 180 degrees of the semi-circle of one half of the base of the cellular telephone's antenna. On most mobile telephones this shields most of the transmitting antenna for "after market" use. If designing into a mobile telephone the shield should encompass as half of a cylinder the entire 180 degrees half of the transmitting antenna closest to the mobile telephone user's head. The outer most part of this multi-layered tape and it's edges should be covered with a flexible plastic coating to protect the user from potential problems with the lead tape.

Because mobile telephones have different sized antennas, the shield would need to be made to encircle one half of the largest antenna on the market (should be under one inch). Trimming the length to encompass one half of the mobile telephones antenna would easily accommodate mobile telephones with smaller diameter antennas. The shield would be applied as shown in Figure 4.

This flexible deflector shield would be effective with either being built-in on a new mobile telephone or added on to the outside of an "after market" mobile telephone. The difference is that being built-in the shield would be close to 100% effective in deflecting microwave radiation. However, when installed as an "after market" product the effectiveness may only be 85% because the mobile telephone manufacturers have sunk the transmitting antenna partially into the body of some of the mobile telephones to reduce their SAR test numbers. The most effective method of installing the shield is shown in Figure 5.

The parts shown in Figure 3 clad onto one another, with Part 1 having Part 2 cladded to it in parallel, then Part 3 cladded to Part 2's other side in parallel. Then the edges and outer most part would be coated with a flexible plastic to form an assembled device. Part 1 could be gold or lead, both stop radiation, but because of cost lead would be the logical choice for manufacture.